

Medicines for People with Diabetes



Name _____

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American Association
of Diabetes
Educators
Chicago, IL

Shelly Amos, L.R.D.
Nez Percé Nutrition
Lapwai, ID

Noreen Cohen,
M.S., R.D., L.D.
Humana Health
Care Plans
San Antonio, TX

Paula Dubcak,
R.N., C.D.E.
Humana Health
Care Plans
San Antonio, TX

Lois Exelbert,
R.N., M.S.,
C.D.E., A.C.C.E.
Joslin Center
for Diabetes
Baptist Hospital
of Miami
Miami, FL

Ruth Farkas-Hirsch,
R.N., M.S., C.D.E.
(on behalf of American
Diabetes Association)
University of
Washington,
Diabetes Care Center
Seattle, WA

Lawana Geren,
R.N., C.D.E.
Humana Health
Care Plans
San Antonio, TX

Gwen Hosey,
M.S., A.N.P., C.D.E.
IHS Portland Area
Diabetes Program
at Washington
Bellingham, WA

Joslin Center
for Diabetes
Community
Medical Center
Toms River, NJ

Melinda Maryniuk,
M.Ed., R.D., C.D.E.
Joslin Diabetes Center
Boston, MA

Pat Mathis,
M.S., R.N., C.D.E.
Marianne Sack,
R.N., C.D.E.
So Others Might Eat
Washington, DC

Kathy O'Keeffe, M.S.,
R.D., L.D., C.D.E.
Carolina Diabetes
and Kidney Center
Sumter, SC

Carolyn Ross,
R.D., M.S., C.D.E.
PHS Indian Hospital
Cass Lake, MN

Lisa Spence, M.S.
Purdue University
West Lafayette, IN

Judy Tomassene,
M.P.H., M.S., R.D.
Seattle Indian
Health Board
Seattle, WA

Madelyn L. Wheeler,
M.S., R.D.,
F.A.D.A., C.D.E.
Indiana University
School of Medicine
Diabetes Research
and Training Center
Indianapolis, IN

Find Your Diabetes Medicines*

Sulfonylureas pages 8–9

Amaryl
DiaBeta
Diabinese
Dymelor
Glucotrol
Glucotrol XL
Glynase PresTab
Micronase
Orinase
Tolinase



Biguanides pages 11–12

Glucophage

Alpha-glucosidase Inhibitors page 13

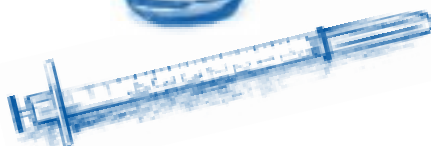
Glyset
Precose

Thiazolidinediones page 14

Rezulin

Insulins pages 15–21

Humalog insulin lispro
Regular insulin
NPH or Lente insulin
Ultralente insulin
Insulin mixtures



* The names for the diabetes pills given here are the brand names.

Do I need to take diabetes medicine?

What if I have type 1 diabetes?

Type 1 is the type of diabetes that people most often get before 30 years of age. All people with type 1 diabetes need to take insulin (*IN-suh-lin*) because their bodies do not make enough insulin. Insulin helps turn sugar from food into energy for the body to work.



Your diabetes teacher will help you learn how to take insulin.

What if I have type 2 diabetes?

Type 2 is the type of diabetes most people get as adults after the age of 40. But you can get diabetes at a younger age.

Healthy eating, exercise, and losing weight may help you lower your blood sugar (also called blood glucose) when you find out you have type 2 diabetes. If these treatments do not work, you may need one or more types of diabetes pills to lower your blood sugar. After a few more years, you may need to take insulin shots because your body is not making enough insulin.

You, your doctor, and your diabetes teacher should always find the best diabetes plan for you.



Healthy eating may help you lower your blood sugar.

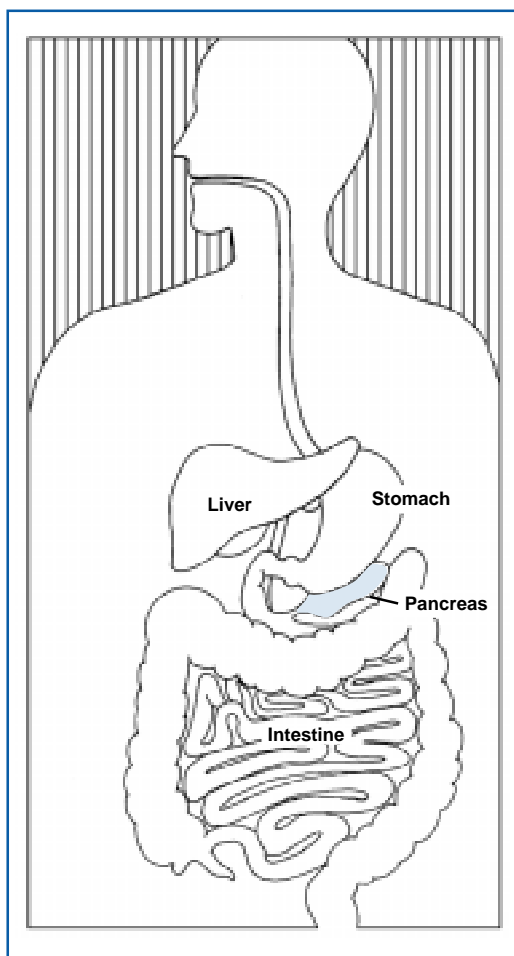
Why do I need medicines for type 1 diabetes?

Most people make insulin in their pancreas.

If you have type 1 diabetes, your body does not make insulin. Insulin helps sugar from the foods you eat get to all parts of your body to use for energy.

Because your body no longer makes insulin, you need to take insulin in shots. Take your insulin as your doctor tells you.

Find out more about insulin on pages 15 to 21.



The pancreas is where your body makes insulin.

Why do I need medicines for type 2 diabetes?

If you have type 2 diabetes, your pancreas usually makes plenty of insulin. But your body cannot correctly use the insulin you make. You might get this type of diabetes if members of your family have or had diabetes. You might also get type 2 diabetes if you weigh too much or do not exercise enough.

After you have had type 2 diabetes for a few years, your body may stop making enough insulin. Then you will need to take diabetes pills or insulin.

You Need To Know:

- Diabetes medicines that lower blood sugar never take the place of healthy eating and exercise.
- If your blood sugar gets too low more than a few times in a few days, then call your doctor.
- Take your diabetes pills or insulin even if you are sick. If you cannot eat much, call your doctor.

What are the four types of diabetes pills?

Four types of diabetes pills can help people with type 2 diabetes lower their blood sugar. Each type of pill helps lower blood sugar in a different way. The diabetes pill you take is from one of these groups. You might know your pills by a different name.

- **Sulfonylureas** (*SUL-fah-nil-YOO-ree-ahz*).
- **Biguanides** (*by-GWAN-ides*).
- **Alpha-glucosidase inhibitors**
(*AL-fa gloo-KOS-a-dayss in-HIB-it-erz*).
- **Thiazolidinediones**
(*THEE-ah-ZAH-la-deen-DYE-owns*).

Your doctor might prescribe one pill. If the pill does not lower your blood sugar, your doctor may

- Ask you to take more of the same pills, or
- Add a new pill or insulin, or
- Ask you to change to another pill or insulin.



Questions To Ask About Your Diabetes Medicines

Ask these questions when your doctor prescribes a medicine. Write the answers in pencil so that you can make changes if your doctor changes your medicines.

- ☐ When do I take the medicine—before a meal, with a meal, or after a meal?

- ☐ How often should I take the medicine?

- ☐ Should I take the medicine at the same time every day?

- ☐ What should I do if I forget to take my medicine?

- ☐ What side effects may happen?

- ☐ What should I do if I get side effects?

Sulfonylureas

These pills do two things:

- They help your pancreas make more insulin, which then lowers your blood sugar.
- They help your body use the insulin it makes to better lower your blood sugar.

Other Names for This Medicine

| Generic Name | Brand Name |
|----------------|-------------------------------------|
| acetohexamide | Dymelor |
| chlorpropamide | Diabenese |
| glimepiride | Amaryl |
| glipizide | Glucotrol, Glucotrol XL |
| glyburide | DiaBeta, Glynase PresTab, Micronase |
| tolazamide | Tolinase |
| tolbutamide | Orinase |

For these pills to work, your pancreas has to make some insulin. Sulfonylureas can make your blood sugar too low, which is called hypoglycemia (*HY-po-gly-SEE-mee-ah*). **Learn about low blood sugar on pages 23 to 24.**

How often should I take sulfonylureas?

Some sulfonylureas work all day, so you take them only once a day. Others you take twice a day. Your doctor will tell you how many times a day you should take your diabetes pill(s). Ask if you are not sure.



When should I take sulfonylureas?

The time you take your pill depends on which pill you take and what your doctor tells you. If you take the pill once a day, you will likely take it just before the first meal of the day (breakfast). If you take the medicine twice a day, you will likely take the first pill just before your first meal, and the second pill just before the last meal of the day (supper). Take the medicine at the same times each day. Ask your doctor when you should take your pills.



What are possible side effects?

Taking sulfonylureas might cause

- A low blood sugar reaction (hypoglycemia).
- An upset stomach.
- A skin rash or itching.
- Weight gain.



Tell your doctor about the side effects you feel.

What Are Side Effects?

- Side effects are changes that may happen in your body when you take a medicine. When your doctor gives you a new medicine, ask what the side effects might be.
- Some side effects happen just when you start to take the medicine. Then they go away.
- Some side effects happen only once in a while. You may get used to them or learn how to manage them.
- Some side effects will cause you to stop taking the medicine. Your doctor may try another one that doesn't cause you side effects.

Biguanides

Biguanides are another type of diabetes medicine. Metformin (*met-FOR-min*) is a biguanide that helps lower blood sugar by making sure your liver does not make too much sugar. Metformin also lowers the amount of insulin in your body.

| Other Names for This Medicine | |
|-------------------------------|------------|
| Generic Name | Brand Name |
| metformin | Glucophage |

You may lose a few pounds when you start to take metformin. This weight loss can help you control your blood glucose. Metformin can also improve blood fat and cholesterol levels, which are often not normal if you have type 2 diabetes.

Do not take metformin if you have kidney disease.

If you drink alcohol, talk to your doctor about whether you should take metformin.

A good thing about metformin is that it does not cause blood sugar to get too low (hypoglycemia) when it is the only diabetes medicine you take.



How often should I take metformin?

Two or three times a day.



When should I take metformin?

With a meal. Your doctor should tell you which meals to take it with.

What are possible side effects?

Taking metformin might cause

- Nausea, diarrhea, and some other stomach symptoms (these usually go away after you take the medicine for a while).
- A metallic taste in your mouth.

You Need To Know:

- Do not change or stop taking your diabetes medicine without first talking to your doctor.
- Your doctor might ask you to switch from pills to insulin shots if your pancreas stops making enough insulin.

Alpha-glucosidase inhibitors

There are now two alpha-glucosidase inhibitors, acarbose (*AK-er-bose*) and miglitol (*MIG-leh-tall*). Both medicines block the enzymes that digest the starches you eat. This action causes a slower and lower rise of blood sugar through the day, but mainly right after meals.

Neither acarbose nor miglitol causes blood sugar to get too low (hypoglycemia) when it is the only diabetes medicine you take.

Other Names for This Medicine

| Generic Name | Brand Name |
|--------------|------------|
| acarbose | Precose |
| miglitol | Glyset |

How often should I take acarbose or miglitol?

Three times a day, at each meal. Your doctor might ask you to take the medicine less often at first.



When should I take acarbose or miglitol?

With the first bite of a meal.



What are possible side effects?

Taking this pill may cause stomach problems (gas, bloating, and diarrhea) that most often go away after you take the medicine for a while.

Thiazolidinediones

This type of medicine helps your muscles make better use of your insulin. The only medicine now in this group is called troglitazone (*tro-GLIT-uh-zone*).

Troglitazone doesn't cause blood sugar to go too low when it is the only diabetes medicine you take.

| Other Names for This Medicine | |
|-------------------------------|------------|
| Generic Name | Brand Name |
| troglitazone | Rezulin |



How often should I take troglitazone?

Usually once a day.



When should I take troglitazone?

With the same meal at the same time each day. Ask your doctor when you should take it. Your body uses this medicine best if you take it with your largest meal of the day.

What are possible side effects?

Most people can take troglitazone without any side effects. However, if you take birth control pills, you should know that troglitazone might make your birth control pills less effective. Make sure your doctor knows that you take birth control pills.

What do I need to know about insulin?

If your pancreas no longer makes enough insulin, then you need to take insulin as a shot. You inject the insulin just under the skin with a small, short needle. You cannot take insulin as a pill.

Why can't I take insulin as a pill?

Insulin is a protein. If you took insulin as a pill, your body would break it down and digest it before it got into your blood to lower your blood sugar.



How does insulin work?

Insulin lowers blood sugar by moving sugar from the blood into the cells of your body. Once inside the cells, sugar provides energy. Insulin lowers your blood sugar whether you eat or not. You should eat on time if you take insulin.

How often should I take insulin?

Most people with diabetes need at least two insulin shots a day for good blood sugar control. Some people take three or four shots a day to have a more flexible diabetes plan.

When should I take insulin?

You should take insulin 30 minutes before a meal if you take regular insulin alone or with a longer-acting insulin. If you take insulin lispro (Humalog), an insulin that works very quickly, you should take your shot just before you eat.

Are there several types of insulin?

Yes. There are five main types of insulin. They each work at different speeds. Many people take two types of insulin.

The five types of insulin are

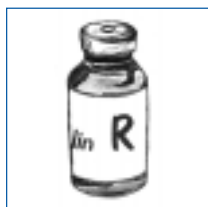


Quick acting, insulin lispro (Humalog)

Starts working in 5 to 15 minutes.

Lowers blood sugar most in
45 to 90 minutes.

Finishes working in 3 to 4 hours.

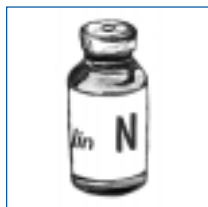


Short acting, Regular (R) insulin

Starts working in 30 minutes.

Lowers blood sugar most in
2 to 5 hours.

Finishes working in 5 to 8 hours.

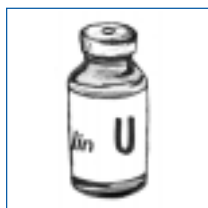


Intermediate acting, NPH (N) or Lente (L) insulin

Starts working in 1 to 3 hours.

Lowers blood sugar most in 6 to 12 hours.

Finishes working in 16 to 24 hours.

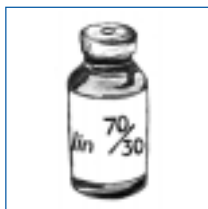


Long acting, Ultralente (U) insulin

Starts working in 4 to 6 hours.

Lowers blood sugar most in
8 to 20 hours.

Finishes working in 24 to 28 hours.



NPH and Regular insulin mixture

Two types of insulins mixed
together in one bottle.

Starts working in 30 minutes.

Lowers blood sugar most in 7 to 12 hours.

Finishes working in 16 to 24 hours.

Does insulin work the same all the time?

After a short time, you will get to know when your insulin starts to work, when it works its hardest to lower blood sugar, and when it finishes working.

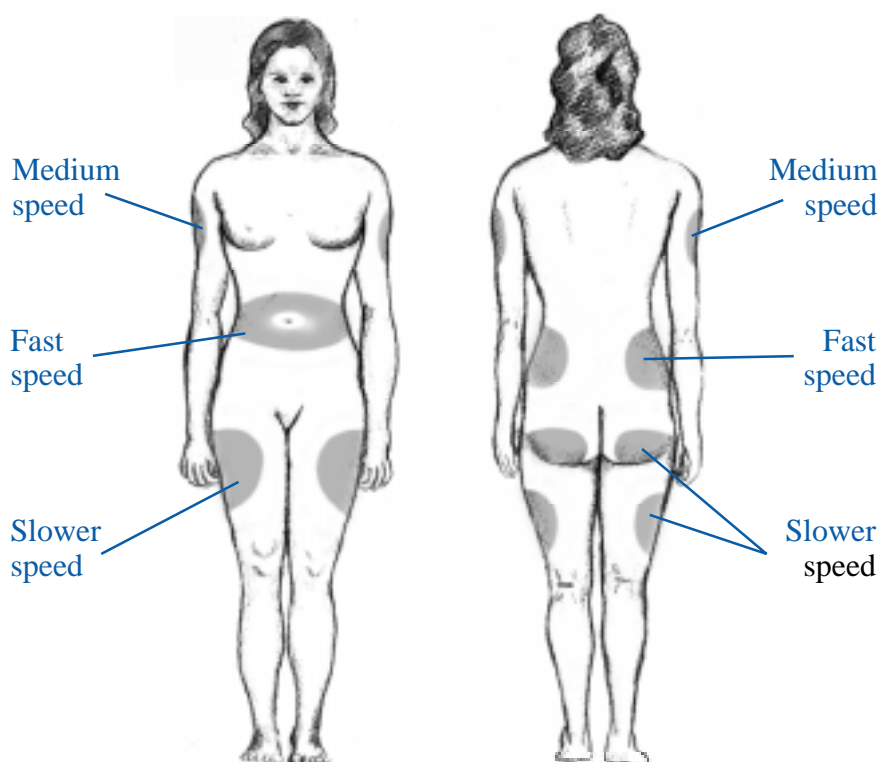
You will learn to match your mealtimes and exercise times to the time when each insulin you take works in your body.

How quickly or slowly insulin works in your body depends on

- Your own response.
- The place on your body where you inject insulin.
- The type and amount of exercise you do and the length of time between your shot and exercise.

Where on my body should I inject insulin?

You can inject insulin into several places on your body. Insulin injected near the stomach works fastest. Insulin injected into the thigh works slowest. Insulin injected into the arm works at medium speed. Ask your doctor or diabetes teacher to show you the right way to take insulin and in which parts of the body to inject it.



These are good places to give yourself insulin shots.

How should I store insulin?

- If you use a whole bottle of insulin within 30 days, keep that bottle of insulin at room temperature. On the label, write the date that is 30 days away. That is when you should throw out the bottle with any insulin left in it.



Keep the bottles of insulin you are using at room temperature.

- If you do not use a whole bottle of insulin within 30 days, then store it in the refrigerator all the time.
- If insulin gets too hot or cold, it breaks down and does not work. So, do not keep insulin in very cold places such as the freezer, or in hot places, such as by a window or in the car's glove compartment during warm weather.
- Keep at least one extra bottle of each type of insulin you use in your house. Store extra insulin in the refrigerator.

Might I take more than one diabetes medicine at a time?

Yes. Your doctor may ask you to take more than one diabetes medicine at a time. Some diabetes medicines that lower blood sugar work well together. Here are examples:

Two diabetes pills

If one type of pill alone does not control your blood sugar, then your doctor might ask you to take two kinds of pills. Each type of pill has its own way of acting to lower blood sugar. Here are pills used together:

- A sulfonylurea and metformin.
- A sulfonylurea and acarbose.
- Metformin and acarbose.

Diabetes pills and insulin

Your doctor might ask you to take insulin and one of these diabetes pills:

- Insulin and a sulfonylurea.
- Insulin and metformin.
- Insulin and troglitazone.

What should I know about low blood sugar?

Sulfonylureas and insulin are the two diabetes medicines that can make blood sugar go too low. Low blood sugar can happen for many reasons:

- Delaying or skipping a meal.
- Eating too little food at a meal.
- Getting more exercise than usual.
- Taking too much diabetes medicine.
- Drinking alcohol.

You know your blood sugar may be low when you feel one or more of the following:

- Dizzy or light-headed.
- Hungry.
- Nervous and shaky.
- Sleepy or confused.
- Sweaty.



You may feel dizzy or shaky when your blood sugar gets too low.

If you think your blood sugar is low, test it to see for sure. If your blood sugar is at or below 70 mg/dl, eat one of these items to get 15 grams of carbohydrate:

- 1/2 cup (4 oz.) of any fruit juice.
- 1 cup (8 oz.) of fat-free or low-fat milk.
- 4 teaspoons of granulated white sugar.
- 1/3 cup (3 oz.) regular soda.
- 6 to 7 small Lifesavers or 4 large Lifesavers.
- Glucose gel or tablets (take the amount noted on package to add up to 15 grams of carbohydrate).

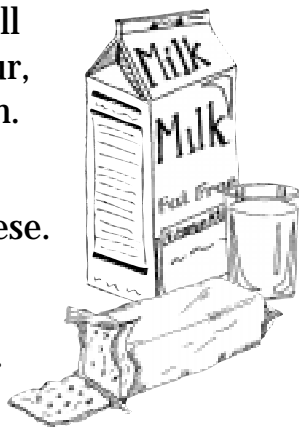


Test your blood sugar again 15 minutes later. If it is still below 70 mg/dl, then eat another 15 grams of carbohydrate. Then test your blood sugar again in 15 minutes.

If you cannot test your blood sugar right away but you feel symptoms of low blood sugar, follow the steps above.

If your blood sugar is not low, but you will not eat your next meal for at least an hour, then have a snack with starch and protein. Here are some examples:

- Crackers and peanut butter or cheese.
- Half of a ham or turkey sandwich.
- A cup of milk and crackers or cereal.



My Diabetes Medicines



Fill in this record about your diabetes medicines with the help of your doctor or diabetes teacher. Write this in pencil so you can make changes when your doctor makes changes in your diabetes medicines.

- The names of the diabetes medicines (insulin or pills) I take are

Name(s) of diabetes medicine:

- I take _____ (name of diabetes medicine) _____ times a day.

At (time)_____ I take (amount) _____.

At (time)_____ I take (amount) _____.

At (time)_____ I take (amount) _____.

- I take _____ (name of diabetes medicine) _____ times a day.

At (time)_____ I take (amount) _____.

At (time)_____ I take (amount) _____.

At (time)_____ I take (amount) _____.

- I take _____ (name of diabetes medicine)
_____ times a day.
At (time)_____ I take (amount) _____.
At (time)_____ I take (amount) _____.
At (time)_____ I take (amount) _____.
- I should call my doctor or diabetes teacher if I have
these problems with my diabetes medicines:

- I should call my doctor or diabetes teacher if my
blood sugar is too low or too high for several days.
Too low is _____ mg/dl for _____ days.
Too high is _____ mg/dl for _____ days.
- My blood sugar should be between _____mg/dl and
_____mg/dl before my first meal of the day.
- My blood sugar should be between _____mg/dl and
_____mg/dl 1 to 2 hours after a meal.
- My blood sugar is too low at _____mg/dl.
- My blood sugar is too high at _____mg/dl.
- My hemoglobin A1c should be _____%.

How do I know if my diabetes medicines are working?

Learn to test your blood sugar. Ask your doctor or diabetes teacher about the best testing tools for you and how often to test. After you test your blood sugar, write down your blood sugar test results. Then ask your doctor or diabetes teacher if your diabetes medicines are working. A good blood sugar reading before meals is between 70 and 140 mg/dl.

Ask your doctor or diabetes teacher about how low or how high your blood sugar should get before you take action. For many people, blood sugar is too low below 70 mg/dl and too high above 240 mg/dl.

One other number to know is the result of a blood test your doctor does called hemoglobin A1c (*HE-muh-glow-bin A-1-C*) or glycated hemoglobin (*GLY-kay-ted HE-muh-glow-bin*). It shows your blood sugar control during the last 2 to 3 months. For most people, a good hemoglobin A1c is 7 percent.

Hold On to This Booklet!

Your diabetes medicines may change in the future. This booklet can help you again.

How To Find More Help

Diabetes Teachers (nurses, dietitians, pharmacists, and other health professionals)

- To find a diabetes teacher near you, call the American Association of Diabetes Educators toll-free at 1-800-TEAMUP4 (1-800-832-6874).

Recognized Diabetes Education Programs

(teaching programs approved by the American Diabetes Association)

- To find a program near you, call 1-800-DIABETES (1-800-342-2383) or look at its Internet home page < <http://www.diabetes.org> > and click on “Diabetes Info.”

Dietitians

- To find a dietitian near you, call The American Dietetic Association’s National Center for Nutrition and Dietetics at 1-800-366-1655 or look at its Internet home page < <http://www.eatright.org> > and click on “Find a Dietitian.”



National Diabetes Information Clearinghouse

1 Information Way
Bethesda, MD 20892-3560
Tel: (301) 654-3327
Fax: (301) 907-8906
E-mail: ndic@info.niddk.nih.gov

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